Fact Sheet

Federal Aviation Administration

FAROS Frequently Asked Questions

1-WHAT IS FAROS?

Final Approach Runway Occupancy Signal (FAROS) is a concept that provides pilots on final approach to an airfield notification that their identified runway for landing is occupied. FAROS uses the Precision Approach Path Indicator (PAPI) lights to give direct notification to the pilots, through a flashing of the lights, that the runway is occupied and unsafe for landing. Although the PAPI is being used in the initial system, Visual Approach Slope Indicator (VASI) lights also could be used. The direct and immediate warning is in response to the National Transportation Safety Board (NTSB) recommendations to provide direct notification to pilots of a specific class of runway incursion categorized as a "landover."

2-WHAT DOES FAROS LOOK LIKE?

FAROS looks like the normal PAPI lights, in that the arrangement of white and red lights remain the same while providing standard glide path information. The only difference is that the FAROS will flash, alerting the pilot that the runway zone is occupied.

3-WILL THE FAROS LIGHTS BE CONFUSED WITH OTHER AIRPORT LIGHTS?

No. As the PAPI lights are indicated on airport information material and the FAROS does not use a new or different set of lights, the confusion with these and other airport lights does not happen.

4-HOW DOES FAROS WORK?

FAROS uses the concept of protected zones on the runway and entrance taxiways. These zones are defined by a series of embedded inductive loops at entrance and exit points of the zones. As an aircraft or vehicle enters or leaves a zone, the magnetic field around the loops is disturbed, thus indicating its presence. Logic in a control subsystem determines the location of the crossing, the entrance or exit event, and the activation or deactivation of the flashing. Sensing methods other than inductive loops may be used, Long Beach had existing infrastructure that the FAA used. In the Long Beach system, there are three zones selected for a representative full length departure; a midfield departure; and a frequent crossing point.

5-DOES FAROS REQUIRE CONTROLLER ACTIVATION?

No. The FAROS operation is autonomous, since this meets the NTSB recommendation and there is no activation required by the controller.

6-DOES FAROS INDICATE AN IMPLIED CLEARANCE TO LAND?

No. The FAROS augments controller-pilot communications. As is always the case, controller commands take precedence and the FAROS does not replace any clearance.

7-WILL PILOTS UNDERSTAND THE MEANING OF THE FLASHING LIGHTS?

Pilot education is essential to the successful evaluation of the FAROS. Informational material has been distributed to private pilots in Southern California and the surrounding area and commercial operators have been briefed on the operation. Additionally, Automatic Terminal Information Services (ATIS) messages will be generated, along with Notices to Airmen (NOTAMs) to notify pilots that the FAROS is operating at a particular airport.

8-HOW IS THE FAROS DEVELOPMENT PROGRAM STRUCTURED?

The FAROS development is a three phased operational evaluation program. Phase one was proof of concept at Long Beach/Daugherty Field Airport (LGB) where existing loops were used to detect aircraft or vehicles. This information was transmitted via wireless modem and powered by solar cells. Phase two included system upgrades to make FAROS more robust through the use of fiber optic communications and buried hardwire power circuits. This operation led to a shadow operations mode where the system operated without actually driving the lights and data was collected to ensure reliability and correctness of operation. Phase three currently exposes pilots to FAROS on a full time basis at Long Beach, with safety and workload reduction being monitored, allowing for system turnoff if needed.

9- SUMMARY

FAROS offers the potential to reduce runway incursions and runway accidents. The current operational evaluation is an essential phase of the program and data collection from system users is essential to determine the effectiveness. This will require collaboration from pilots, vehicle operators, analysts, human factor experts, airport managers, and other users of the system.